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1945

THE PAN-PACIFIC ENTOMOLOGIST

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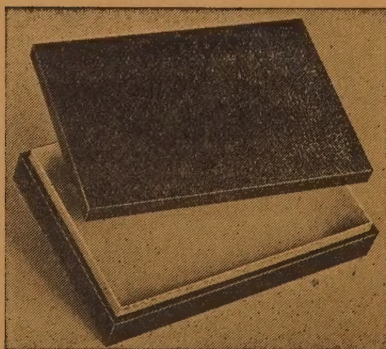
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R NOTES AND DESCRIPTIONS OF AMERICAN POLYCTENIDAE (Hemiptera)

BY G. F. FERRIS, *Stanford University*
AND R. L. USINGER, *University of California*

The present paper is a supplement to the revision of "The Family Polytectenidae" (Ferris, G. F. and Usinger, R. L., 1939, *Microentomology*, 4(1):1-50, 25 figs.). The additional material that has become available since 1939 includes eleven slides kindly sent to G. F. Ferris by A. da Costa Lima from the Instituto de Oswaldo Cruz, one slide loaned to G. F. Ferris by Dr. J. Bequaert from the Venezuelan collections of Pablo J. Anduze, and two slides loaned to R. L. Usinger by Dr. Robert Matheson of Cornell University. One of the Cornell specimens is likewise from Venezuela (Anduze) and the other is the specimen upon which Matheson based his Costa Rican record of *Hesperoctenes tarsalis*.

MORPHOLOGY

The Brazilian material from da Costa Lima includes a last stage nymph of *Hesperoctenes eumops* Ferris and Usinger and two unidentifiable nymphs with perfectly distinct dorsal abdominal scent glands located on the posterior margins of the 4th, 5th and 6th abdominal segments. It is not clear why scent glands are visible in these specimens and not in the other polyctenid nymphs available for study. The polyctenid scent glands resemble the nymphal glands of the bed bug and are another point of similarity between the two families. A search in adult polyctenids for metasternal scent glands similar to those found in the Cimicidae failed to reveal any comparable structures. However, the "second pit of undetermined homologies" located "near each sternal apophyseal pit" (Ferris and Usinger, 1939) is in the proper place and may represent the scent gland opening that is so typical of Cimicoidea and most other Heteroptera.

The ventral surface of the polyctenid head appears to differ from that of other Heteroptera in that the posterior tentorial pits

of the head are adjacent to the inner limits of the genal ctenidia. By definition, then, (Snodgrass, 1935) the median region posterior to these is apparently the gula rather than the hypostomal bridge as in other Heteroptera. Hence the small comb at the posterior margin of the ventral surface of the head should be called the "gular comb."

HESPEROCTENES EUMOPS FERRIS AND USINGER

Seven slides of this species are at hand including one teneral adult male in poor condition, one perfect adult female and five nymphs. These are the specimens referred to by Ferris and Usinger (p. 22) as "*Hesperoctenes* species." They are labelled "? *Hesperoctenes longiceps* Waterhouse, *Molossus perotis*, Campos, VI-1920, A. C. Pestana Coll." and were prepared and determined by da Costa Lima. The well-preserved female differs from typical *eumops* only in having slightly fewer (12) stout bristles on the metapleurites. In the shape of the head, general chaetotaxy, body proportions, and size this female falls well within the range of variation exhibited by the typical California series of *eumops*. The male has the apex of the intromittent organ distinctly sinuate but this is probably due to the fact that the specimen is in a bad state of preservation.

HESPEROCTENES FUMARIUS (WESTWOOD)

A single male specimen from Turrialba, Costa Rica, 2500 feet, August 7, 1927, W. V. Hamilton, has been received from Dr. Matheson. It bears a label "*Hesperoctenes tarsalis* Horv." (Matheson, 1928, *Parasitology* 20:174) and may, indeed, be that species although, if so, it can scarcely be maintained as distinct from typical West Indian *fumarius*. The specimen agrees perfectly with Cuban specimens of *fumarius* except for the naked middle and anterior portions of the metasternum. However, the metasternum shows some evidence of bristles having been broken off. The fourth antennal segment is slightly longer than the second or third but is attenuated apically, possibly due to shriveling. The specimen is 2.4 mm. in length.

Dr. S. C. Bruner has five specimens of typical *fumarius* from *Molossus tropidorhynchus* Gray collected from the buildings of the Estación Experimental Agronomica at Santiago de las Vegas by L. C. Scaramuzza.

Hesperoctenes limai Ferris and Usinger, new species

Head longer than broad, 24::22; labrum less than half as long at middle as total width, 5::12½, rather evenly rounded anteriorly. Chaetotaxy of dorsal surface as in *longiceps*. Genal ctenidia rather evenly rounded in general outline, the teeth rather strongly projecting postero-laterally at sides. Gular bristles wanting. Proportion of antennal segments one to four as ⅔:1½:1½:1½; the first segment with nine short, stout spurs along anterior and basal margins and with longer bristles distally.

Pronotum half again as broad as long and about one-fourth broader than head. Mesonotal pads as long as pronotum, each pad about one-fifth narrower than length of pronotum or mesonotal pad. Elevated area of prosternum a little longer than broad at base, the anterior margin with seven very stout bristles laterally. Elsewhere on anterior half with longer, more slender bristles and with shorter bristles posteriorly on the disk, especially laterally (a few of the central ones apparently broken off). Metasternum with numerous very fine bristles near posterior and lateral margins. Metapleurites with eight or nine irregularly directed, stout bristles arranged in two or three ill-defined rows.

Size: male 3.44 mm., female 3.86 mm.

Holotype, female, LASSANCE, BRAZIL, April 13, 1935, Emmanuel Dias, collector, C. L. prep. *Allotype*, male, SITIN DU MATTO, BAHIA, BRAZIL, April 13, 1935, Emmanuel Dias, collector, C. L. prep.

Nearest to *longiceps* with which it agrees in absence of gular bristles, in its exceedingly long labrum, its relatively long, narrow head and dense bristles posteriorly on metasternum. It differs from *longiceps* in its smaller size, its more numerous and differently arranged metapleural bristles and the narrower head anteriorly with larger labrum.

Hesperoctenes parvulus Ferris and Usinger, new species

Head (including labrum) as long as broad; labrum less than three times as broad as length on median line, 8::3 (almost 4 times as broad as long in *cartus*, 21½::5½, and over four times as broad, 19½::4, in *vicinus*). Genal ctenidia as seen from above rather strongly rounded immediately behind first antennal segment, following lateral margins of head posteriorly and laterally, the teeth scarcely exceeding sides of head. Gular bristles seven or eight in number, with two of these near the center set slightly forward. Proportion of antennal segments one to four as 2½:4:3½:3½, with seven stout spurs on outer anterior side of first segment beneath.

Pronotum slightly more than half again as broad as long, 3:2¼, much as in *cartus*. Mesonotal lobes scarcely shorter than pronotum, a single lobe being one-fifth longer than broad. Elevated portion of prosternum about as long as broad, the disk with five very stout bristles laterally on anterior margin and twenty-six more slender bristles arranged roughly into three rows anteriorly. Behind these the disk is almost entirely naked except for about one dozen small bristles laterally on apical half. Metasternal bristles confined to the areas immediately adjacent to posterior and lateral margins. Metapleurites with only six or eight very stout bristles irregularly arranged into two rows.

Chaetotaxy of upper surface of entire body much as in *cartus*. Size: female 2.28 mm.

Holotype, female, STA. MARIA DE EPIRE, GUARICO, VENEZUELA, September, 1937, Pablo J. Anduze, received from Dr. J. Bequaert. The specimen was taken from *Glossophaga longirostris* Miller, a bat belonging to the family Phyllostomidae. A second female from the same locality on "Vampire bat," 1936, appears to be slightly teneral. It differs in its slightly larger size, 2.4 mm., and in possessing only 5 gular bristles arranged in an irregular row.

Closest to *cartus* and clearly a member of the compact *cartus-vicinus* group, having bristles at middle of hind margin of head beneath and very sparsely placed bristles over the entire dorsal surface. The head is as long as broad and the gular bristles are 8 in number arranged in an irregular, almost double row, thus resembling *cartus*. *Vicinus* has a shorter, broader head and fewer bristles arranged in a single row. The elevated portion of prosternum is naked at middle with only a few bristles posteriorly and laterally, thus still more closely resembling *cartus* with which it likewise agrees in chaetotaxy of metapleurites. The most distinctive feature of *parvulus* is the relatively longer and narrower labrum. In addition, *parvulus* is about two-thirds of a millimeter smaller than *cartus*, the female holotype being the smallest *Hesperoctenes* as yet described.

THE CHAMBERLIN COLLECTION OF BUPRESTIDAE

The California Academy of Sciences has acquired the Collection of Buprestidae of Dr. W. J. Chamberlin, of Corvallis, Oregon.—EDWIN C. VAN DYKE.

SYNOPSIS OF THE MEXICAN SPECIES OF CARDIOCHILES NEES

(Hymenoptera, Braconidae)

BY YING-TOU MAO

University of California, Berkeley

The Mexican species of *Cardiochiles* were first treated by Cresson in 1873, five species being described; and Szépligeti in 1902 described another species from Mexico. Including the two new species here described there are, therefore, eight Mexican species known to science. They may be separated by the following table:

- | | |
|--|--------------------------------|
| 1. Eyes bare | 2 |
| - Eyes hairy | 3 |
| 2. Head, thorax, abdomen and legs entirely black..... | <i>noctis</i> , new sp. |
| - Thorax in part, abdomen entirely, and legs more or less red | <i>bicolor</i> (Szépligeti) |
| 3. Head and thorax more or less yellowish or ferruginous..... | 4 |
| - Head and thorax entirely black..... | 5 |
| 4. Stigma brownish-yellow; wings yellowish; coxae yellow, posterior parts with black markings; scape lemon-yellow; face punctate | <i>ornatus</i> (Cresson) |
| - Stigma blackish; wings dark fuliginous; coxae black; scape black; face smooth and polished..... | <i>thoracicus</i> (Cresson) |
| 5. Wings hyaline on basal half, fuliginous on apical half..... | <i>mexicanus</i> (Cresson) |
| - Wings entirely fuliginous | 6 |
| 6. Malar furrow about as long as the basal width of the mandible; hind femora and tibiae red..... | <i>longimala</i> , new species |
| - Malar furrow not nearly as long as the basal width of the mandible; hind femora and tibiae black..... | 7 |
| 7. Fore tarsus and middle tarsus with fifth segment longer and thicker than the second; fore femur and tibia largely black | <i>aethiops</i> (Cresson) |
| - Fore tarsus with second and fifth segments about equal; middle tarsus with second segment longer than the fifth; fore femur and tibia largely brownish-yellow..... | <i>orizabae</i> (Cresson) |

CARDIOCHILES AETHIOPS (CRESSON), new combination

Toxoneuron aethiops Cresson, 1873, Canad. Ent., 5:66-67, ♀.

The following redescription is from the type.

Female. Length 5.5 mm. Black; pedicel, fore femur and fore tibia apically, and last four segments of fore tarsus yellowish brown; wings fuliginous. *Head.* Antennae incomplete; scape and pedicel with slightly longer pubescence than the flagellum; eyes hairy; ocelli elevated, the distance between the two posterior ocelli slightly longer than that between either of these and the anterior ocellus, and the area around them depressed; vertex smooth and shining; frons impressed, smooth, shining and with a low median longitudinal carina; face smooth, shining and with a short median tubercle above; clypeus smooth, shining and notched on the apical margin medially; temple narrower than the eye in dorsal view; galea short. *Thorax.* Lateral face of pronotum wrinkled medially; notaulices foveolate; mesopleuron smooth and shining, upper groove rugose in middle portion, lower groove weakly foveolate, the posterior groove foveolate with a smooth impression from the middle leading anteriorly to the lower groove; metapleuron rugose, median ventral part of its anterior portion plain; propodeum rugose, carinae distinct and high, areola diamond-shaped, spiracle ovate and situated before the middle of the spiracular area. First abscissa of radius thicker and longer than that of basal vein; third and fourth abscissae of cubitus about equal; second abscissa of cubitus and recurrent vein about equal; interanal vein represented by a pigmented line. Fifth segment of fore leg longer and thicker than second or third; middle leg also with the fifth tarsal segment longer and thicker than the second or third, and tibial spur about as long as the basitarsus; apex of hind tibia not thickened, tibial spur about three-fourths as long as the basitarsus which is shorter than the remaining four segments combined, second tarsal segment slightly longer than the fifth and the third shorter than the fifth, hind claws pectinate basally. *Abdomen.* First abdominal suture extending obliquely forward laterally; second tergite slightly shorter than the third medially; hypopygium about as long as the second and third tergites combined, plowshare-shaped; ovipositor sheath about as long as the first two segments of hind tarsus combined, pubescent.

The type female, the only known specimen, is from CORDOVA, MEXICO (Academy of Natural Sciences of Philadelphia).

CARDIOCHILES BICOLOR (Szépligeti), new combination

Toxoneuron bicolor Szépligeti, 1902. Term. Füzet., 25:78, ♀.

The following is simply a translation of the original description.

Smooth; head transverse, maxillary palpi 5-, labial palpi 4-segmented; ocelli not located on summit of vertex; eyes bare, occiput not margined and only slightly excavated. Antenna 42-segmented, third segment as long as the obovate scape. Mesonotum

divided; median lobe broad, not prominent. Propodeum pubescent, areolate. First intercubitus angled, without stump of a vein; third abscissa of radius weakly marked, transparent and arching almost bowlike to the wing tip; anal cell divided; radial cell of hind wing not divided. The longer spur of hind tibia half as long as the metatarsus; tarsal segments 2-5 much more slender than the first. First abdominal segment shorter than its apical width, almost triangular, strongly narrowed anteriorly, with two longitudinal furrows defining a triangular area; following segments transverse and of about equal length; hypopygium large.

Black; mesothorax (except median lobe), scutellum, femur of hind leg, the tibiae (tip of posterior tibia brown), tarsi of fore and middle legs and abdomen, red. Wings brown, stigma dark. Length 9 mm., ovipositor sheath short, wedge-shaped. Mexico.

Type in the Hungarian National Museum, Budapest.

Cardiochiles longimala, new species

Male. Length 5.5 mm. Black; fore femur except base, apical half of middle femur, hind femur, and tibiae except inner apex of hind tibia, ferruginous; tibial spurs dark and those of hind leg dark ferruginous. *Head.* Antenna 35-segmented; scape and pedicel with longer pubescence than the flagellum; eye hairy; ocelli slightly elevated and the distance between two posterior ocelli longer than that between either one of these and the anterior ocellus; vertex smooth, shining, and slightly sloping toward frons; frons impressed, smooth, shining, and with a low median longitudinal carina; face smooth, shining, with a low median tubercle above and the median line below slightly elevated; clypeus smooth, slightly shorter than the face, its apical margin notched medially; malar furrow slightly shorter than the basal width of the mandible; temple and eye of about equal width in dorsal view; galea moderate, not conspicuously long. *Thorax.* Lateral face of pronotum medially rugose; notaulices distinct, smooth; mesopleuron smooth and shining, upper groove finely rugose, lower groove finely foveolate, posterior groove foveolate with a smooth curved groove from the middle leading anteriorly to the lower groove; metapleuron rugose, median ventral part of its anterior portion smooth and shining; propodeum rugose, transverse carina low, the other carinae moderately high, spiracle ovate. First abscissa of radius longer and thicker than that of basal vein; fourth abscissa of cubitus slightly less than twice as long as the third; second abscissa of cubitus and recurrent vein about equal; interanal vein represented by a pigmented line. Fifth segment of fore tarsus longer than the second; inner spur of middle tibia about three-fourths as long as the basitarsus, second segment of middle tarsus longer than the fifth which is about equal to the third; apex of hind tibia not thickened, inner spur slightly over half as long as the basitarsus, basitarsus about as long as the next three

tarsal segments combined, second tarsal segment longer than the third and third longer than the fifth, hind tarsal claws pectinate basally. *Abdomen*. First abdominal suture extending obliquely forward laterally; an oblique groove on each side of the second tergite halfway between median line and the margin; third tergite about 1.50 times as long as the second.

Type. Male, GUADALAJARA, MEXICO, August 2, 1914 (U. S. National Museum, No. 57295). This species is very similar to *C. floridanus* (Ashmead) except for the longer malar space.

CARDIOCHILES MEXICANUS (CRESSON), new combination

Toxoneuron mexicanum Cresson, 1873. *Canad. Ent.*, 5:66-67, ♀ ♂.

The following redescription is from the type.

Female. Length 7 mm. Black, a spot on outer upper orbit yellowish-brown; about apical 0.40 of fore wing and tip of hind wing fuliginous. *Head*. Antennae incomplete; scape and pedicel with longer pubescence than the flagellum; eye hairy; ocelli slightly elevated, the distance between the two posterior ocelli longer than that between one of these and the anterior ocellus; vertex slightly sloping toward frons, smooth, shining, and about as long as frons; frons impressed, smooth, shining, and with a low median longitudinal carina; face shining, with a short median tubercle above, and the median line slightly elevated; clypeus shining, plain, notched on apical margin medially; temple and eye of about equal width in dorsal view; galea short. *Thorax*. Lateral face of pronotum weakly rugose medially; notaulices foveolate, distinct and deep; mesopleuron smooth and shining, upper groove flat, weakly rugose, lower groove foveolate, and posterior groove foveolate with a smooth groove from the middle leading anteriorly to the lower groove; metapleuron rugose, median ventral part of its anterior portion shining and plain; propodeum rugose, carinae moderately high, spiracle transverse. First abscissa of radius slightly longer than that of basal vein; fourth abscissa of cubitus about 1.30 times as long as third; second abscissa of cubitus longer than recurrent vein; interanal vein absent. Fifth segment of fore tarsus longer than the second or third; inner spur of middle tibia slightly shorter than basitarsus, second and fifth segments of middle tarsus about equal, the third shorter than the fifth; apex of hind tibia not thickened, tibial spur about 0.60 as long as the basitarsus, basitarsus shorter than the remaining tarsal segments combined, second segment longer than the fifth, and third and fifth about equal; hind tarsal claws pectinate basally. *Abdomen*. First abdominal suture extending obliquely forward laterally; second tergite slightly shorter than the third medially; hypopygium about as long as the second to fourth

segments of hind tarsus combined, and plowshare-shaped; ovipositor sheath (fig. 1A) about as long as the first two segments of hind tarsus combined, pubescent.

Male. Essentially similar to the female.

The type female, CORDOVA, MEXICO; and two paratypes, one female and one male, MEXICO (Academy of Natural Sciences of Philadelphia); the paratype female has second abscissa of cubitus and recurrent about equal. One male, MEXICO (U. S. National Museum).

Cardiochiles noctis, new species

Female. Length 7 mm. Black, outer and upper parts of inner orbit ferruginous; apical half of mandible dark reddish; spur of fore tarsus dark ferruginous; eye grayish-black. *Head.* Antenna 35-segmented; scape and pedicel shining, with longer pubescence than the flagellum; eye bare; ocelli slightly elevated; vertex shining, and slightly sloping toward frons; frons shining, impressed, and with a median longitudinal carina; face with a short median ridge above, below which there is a more or less triangular elevation; clypeus with its basal margin slightly elevated medially, its alpeal margin truncate and slightly arched inward and not notched; temple and eye about equal in dorsal view; galea short. *Thorax.* Lateral face of pronotum rugose medially; median lobe of mesonotum with a slight depression along each side of the low median longitudinal elevation; notaulices distinct and foveolate; mesopleuron with upper and lower grooves foveolate, and posterior groove rather coarsely foveolate with a smooth depression at the middle anterior to the groove; metapleuron rugose with the median lower part of its anterior portion smooth; propodeum rugose, its carinae high and distinct, and propodeal spiracle ovate and elevated. First abscissa of radius longer and thicker than that of basal vein; third abscissa of radius slightly shorter than fourth; second abscissa of cubitus shorter than recurrent vein; second abscissa of submedius slightly longer than first; interanal vein represented by a short stump continued by a pigmented line. Fifth segment of fore tarsus longer than the second; inner spur of middle tibia about two-thirds as long as basitarsus, second tarsal segment slightly shorter than fifth; outer apical margin of hind tibia thickened, slightly flaring, but not forming a strong process; inner spur of hind tibia about half as long as basitarsus; basitarsus shorter than the next four tarsal segments combined, second tarsal segment longer than the fifth; taral claws pectinate basally. *Abdomen.* First abdominal suture slightly curved cephalad to the margin; second tergite shorter than the third; hypopygium plowshare-shaped, about as long as the first three tergites combined; ovipositor sheath (fig. 1B) with short pubescence except at base, about three-fourths as long as the hypopygium.

Male. Essentially similar to the female, but the propodeal carinae low or not distinct.

Type. Female, MEADOW VALLEY, MEXICO. C. H. T. Townsend (U. S. National Museum, No. 57296). *Paratypes.* Four females and three males apparently collected at the same locality by the same collector.

CARDIOCHILES ORNATUS (CRESSON), new combination

Toxoneuron ornatum Cresson, 1873. *Canad. Ent.*, 5:66, 69, ♂.

The following redescription is from the type.

Male. Length 6 mm. Head lemon-yellow; thorax and abdomen light brownish-yellow; eye grayish-black; flagellum brown; the following parts black: tubercle on the medium upper part of face; a spot on frons including ocelli, and from this a narrow band extending to summit of each eye and then to occiput; lower part of proepisternum; posterior median margin of lateral face of pronotum; two broad vittae on median lobe of mesoscutum separated by a narrow median line, and one broad vitta on each lateral lobe of mesoscutum; tegula; mesoscutellum except lateral and posterior margins; a u-shaped band between lower and posterior grooves on upper half of mesopleuron; mesosternum; a large spot and a small one laterally, and a large spot ventrally, on hind coxa; a spot on each side of first tergite posteriorly; tergites 3 to 7 except for narrow apical margins; inner side of hind femur and tibia. Wings yellowish, veins and stigma pale brown, or brownish-yellow. *Head.* Antennae incomplete; scape and pedicel with longer pubescence than the flagellum; eye hairy; ocelli slightly elevated, the distance between the two posterior ocelli longer than that between either one of them and the anterior ocellus; frons impressed, smooth, shining, with a median longitudinal carina; face punctate, slightly depressed medially, and with a short median tubercle above; clypeus punctate, its apical margin notched at the middle; temple broader than the eye in dorsal view; galea short. *Thorax.* Lateral face of pronotum smooth and shining; notaulices moderately foveolate, deep; mesopleuron shining, upper groove punctate, lower groove weakly foveolate, and posterior groove shallowly foveolate; metapleuron rugose, median ventral part of its anterior portion and anterior part of its posterior portion smooth and shining; propodeum somewhat plain, all carinae high and distinct and spiracle transverse. First abscissae of radius and basal vein about equal, but the former thicker than the latter; third abscissa of cubitus slightly shorter than the fourth; second abscissa of cubitus and the recurrent vein about equal; interanal vein absent. First segment of fore tarsus longer than the second; inner spur of middle tibia slightly shorter than basitarsus and fifth tarsal seg-

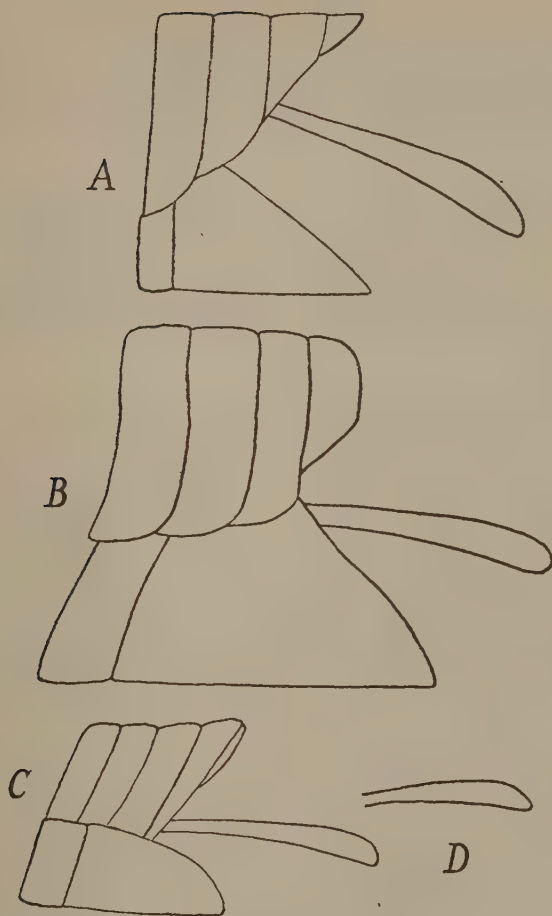


FIGURE 1

Apex of abdomen and ovipositor sheath of *C. mexicanus* (A), *C. noctis* (B), *C. orizabae* (C). Ovipositor sheath of *C. thoracicus* (D).

ment longer than second; apex of hind tibia not thickened, its inner spur about three-fourths as long as basitarsus; posterior basitarsus about as long as the other four tarsal segments combined, second tarsal segment longer than the fifth, third and fifth about equal; hind tarsal claws pectinate basally. *Abdomen.* First abdominal suture extending obliquely forward laterally; second tergite about half as long as third.

Type male, CORDOVA, MEXICO.

The type of this species was not recorded by Cresson, 1916, in "The Cresson Types of Hymenoptera" (Mem. Amer. Ent. Soc., No. 1), but the author found a specimen in the collection of the Academy of Natural Sciences of Philadelphia labeled *Toxoneuron ornatum*. It fits the description and is considered to be the type.

CARDIOCHILES ORIZABAE (CRESSON), new combination

Toxoneuron orizabae Cresson, 1873. Canad. Ent., 5:66-67, ♂.

The following redescription is from the type.

Male. Length 4.2 mm. Black; fore leg yellowish-brown, coxa trochanters and base of femur black, apex of tibia, tibial spurs and tarsus dark yellowish-brown; knee of middle leg yellowish-brown; wings light fuliginous. *Head.* Antenna 30-segmented; eye hairy; ocelli slightly elevated; vertex about as long as frons, smooth, shining; frons impressed, smooth, shining, and with a low median longitudinal carina; face smooth, shining, and with a short median tubercle above; clypeus smooth, shining and with its apical margin notched at the middle; temple and eye about equal in dorsal view; galea short. *Thorax.* Lateral face of pronotum wrinkled medially on anterior half; notaulices finely foveolate; mesopleuron smooth, shining, upper and lower grooves finely foveolate, posterior groove coarsely foveolate, with a smooth, curved groove from the middle leading anteriorly to the lower groove; metapleuron rugose, median ventral part of its anterior portion smooth and shining; propodeum rugose, carina moderately distinct and high, spiracle ovate and situated before the middle of the spiracular area. First abscissa of radius longer and thicker than that of basal vein; fourth abscissa of cubitus about 1.50 times as long as the third; second abscissa of cubitus and recurrent vein about equal; interanal vein represented by a pigmented line. Fifth and second segments of fore tarsus about equal; inner tibial spur of middle leg about as long as basitarsus, second tarsal segment longer than fifth, and third and fifth about equal; apex of hind tibia not thickened, inner tibial spur about two-thirds as long as basitarsus, which is about as long as the next three tarsal segments combined, second tarsal segment longer than the third, and third longer than the fifth; hind tarsal claws pectinate basally.

Abdomen. First abdominal suture extending obliquely forward laterally; third tergite slightly over 1.50 times as long as the second.

Female. Essentially similar to the male. Hypopygium about as long as the hind basitarsus, plowshare-shaped and its median ventral line folded longitudinally; ovipositor sheath (fig. 1C) about as long as the first three segments of hind tarsus combined, and pubescent.

Type male, ORIZABA, MEXICO (Academy of Natural Sciences of Philadelphia); one female, CORDOVA, MEXICO, F. Knab (U. S. National Museum).

CARDIOCHILES THORACICUS (CRESSON), new combination

Toxoneuron thoracicum Cresson, 1873. *Canad. Ent.*, 5:68, ♀.

Toxoneura thoracica Ashmead, 1894. *Proc. Ent. Soc., Wash.*, 3:49, 51, ♀ ♂.

The following redescription is from the type.

Female. Length 4.5 mm. Head ferruginous; antenna, lower end of the cheek, and lower end of face between cheek and clypeus black; eye grayish-black; apical margin of clypeus dark ferruginous; thorax, abdomen and legs black; pronotum, proepisternum, mesonotum, tegulae, upper part of mesopleuron, apical third of fore femur, and fore tibia and tarsus, ferruginous; wings fuliginous. *Head.* Antennae incomplete, scape and pedicel with longer pubescence than the flagellum; eye hairy, ocelli elevated; vertex smooth, polished, and flat; frons smooth, polished, distinctly impressed, and with a median longitudinal carina; face slightly less than twice as wide as long, smooth, polished, its median line slightly elevated, and with a very indistinct short median ridge above; clypeus about 1.50 times as wide as long, smooth, polished, and notched on apical margin at the middle; temple broader than the eye in dorsal view; malar furrow about 0.75 as long as the basal width of mandible; galea short. *Thorax.* Median portion of the lateral face of pronotum rugose; median lobe of mesoscutum without a longitudinal impression on each side of the median line; notaulices foveolate; mesopleuron smooth, polished, its upper and lower grooves foveolate and its posterior groove rather coarsely foveolate with a short smooth impression from the middle leading to the lower groove; anterior portion of metapleuron smooth and polished and posterior portion rugose, anterior half plain; propodeum rugose, carinae high and distinct, and spiracle ovate, situated before the middle of the spiracular area. First abscissa of radius 1.50 times as long as that of basal vein; third abscissa of cubitus shorter than the fourth; recurrent vein slightly longer than the second abscissa of cubitus and about one-half as long as the second abscissa of basal vein; nervulus postfurcal by about 0.33 its own length; interanal vein absent. Second and fifth segments of fore tarsus about equal; apex of hind tibia not thickened

and expanded into a flaring process; inner spur of middle tibia longer than the basitarsus, second and fifth tarsal segment about equal; inner spur of hind tibia about 0.80 as long as the basitarsus, basitarsus shorter than the last four tarsal segments combined, and second and third tarsal segments longer than the fifth; hind claws pectinate basally. *Abdomen*, First abdominal suture extending obliquely forward laterally; second tergite slightly shorter than the third medially; ovipositor sheath (fig. 1D) about 0.67 as long as the abdomen.

Male. Essentially similar to the female; a transverse black band on vertex between eyes; clypeus notched rather strongly.

Type female, CORDOVA, MEXICO, and a male labeled MEXICO (Academy of Natural Sciences of Philadelphia). One male from Arizona recorded by Ashmead is not in the U. S. National Museum collection.

NESTING HABITS OF *ANDRENA RHODOTRICA* LINSLEY (Hymenoptera-Andrenidae)

Andrena rhodotricha was originally described from specimens collected by G. E. Bohart and the writer at Berkeley, California¹. It has subsequently been taken by C. D. Michener on *Salix*. On March 14, 1939, this species was found nesting in a perpendicular five foot bank on the south side of Dwight Way Hill, Berkeley. The burrows were constructed among the large basal roots of a California laurel growing on the top of the bank. The burrow entrances were all within four to five inches of each other and were frequently hidden by roots or cracks in the ground. They were 5 mm. in diameter and penetrated the moist clay soil as a smooth circular hole for from three to six inches. Numerous cells were constructed along each burrow and were seldom more than an inch away from those in the same or adjacent series. All of the bees had emerged and several females had constructed fresh burrows, the cells of which were waxed, and provisioned with a spherical ball of pollen measuring 5 mm. in diameter. The eggs were white, slightly bowed, and 3 mm. long by less than 1 mm. wide. This species was also found nesting at the Orinda Crossroads, Contra Costa County, in February, 1940. The mature bees were unemerged and were taken from cells among the roots of a California buckeye at the top of a six foot bank.—J. W. MACSWAIN.

¹ Linsley, E. G. 1939. New species of andrenid bees from California. *Pan-Pac. Ent.*, 15:155-162.

A NEW GENUS—RETUSANUS—AND FIVE NEW SPECIES
OF MEXICAN LEAFHOPPERS
(Homoptera, Cicadellidae)

BY DWIGHT M. DeLONG

Department of Zoology and Entomology, Ohio State University

The members of the Genus *Retusanus* are characterized by being densely covered by minute brown spots. They are apparently Deltacephaloid in type, the elytron resembling the venation of this group. There are many costal veinlets, the central anteapical cell is long, the outer anteapical cell is shorter and it is often divided into two or more cells. The vertex is flat or concave between the eyes and forms a definite margin with the front. The vertex is rather short and broadly rounded on the margin. The long ovipositor exceeding the long narrow pygofer indicates a definite relationship to the Aconuran group.

Type of genus *Retusanus punctatus* DeLong.

The species of this genus are very similar in coloration and appearance and can be separated by the male genital structures. The styles and pygofer spines are quite different in the different species while the aedeagus in lateral view shows some differences in certain species.

Retusanus punctatus DeLong, new species

A broad headed species marked with minute brown peppered spots. Length male 4 mm.

Vertex broadly rounded, appearing almost parallel margined, less than two-thirds as long at middle as basal width between eyes.

Color: Vertex pale with ocelli and two spots between them just above margin, brown. These four brown spots are about equidistant from eyes and from each other. Remainder of vertex sparsely marked with minute brown spots. Pronotum and scutellum brown, densely marked with minute brown spots. Anterior margin of pronotum behind eyes and basal angles of scutellum, rusty brown. Elytra pale subhyaline, veins dark brown, a few minute brown spots on clavus and basal portion. Face pale, rather evenly and densely marked with minute brown spots.

Genitalia: Male aedeagus rather short, erect, apical third with a broad notch dividing it into two portions, an anterior narrow portion, blunt at apex, and a posterior broader portion with a pointed apex. Plates about twice as long as basal width, tapered

to blunt, rounded apices. Style long, rather narrow, deeply roundly notched on outer margin just before apex, forming a slender, outwardly curved apical portion which is narrow but truncate at tip. Pygofer with a long basal spine which extends to apex of pygofer and a short black plate with several teeth arising just before apex of plate.

Holotype male and *paratype* males collected at IGUALA, GUERRERO (elevation 2400 ft.), October 25, 1941, by Good and DeLong.

Retusanus pulverus DeLong, new species

Resembling *punctatus* in general appearance but with vertex more produced, and distinct genitalia. Length, male, 4 mm.

Vertex roundedly rather broadly produced, less than two-thirds as long at middle as basal width between the eyes.

Color: Vertex white, ocelli brown. A pair of proximal oblique spots just above margin at middle. The portion of the pronotum basal to the anterior margins of the eyes densely marked with minute brown spots. Pronotum and scutellum brown, densely marked with minute brown spots, a white spot on each margin of scutellum half way between base and apex. Elytra pale subhyaline with dark brown veins, claval area and central portion of cells of corium densely marked with minute brown spots. Face pale, a band just below margin unmarked, the other portions of face densely marked with minute brown spots.

Genitalia: Male plates rather short, broad at base tapered to bluntly pointed apices. Adeagus short, erect, broadened on apical half, broadly notched at apex forming a blunt anterior portion and a posterior portion which is pointed on apical caudal margin. Styles long, rather narrow, broadly shallowly excavated on outer margin just before apex. The apical third is curved outwardly narrowed to apex which is pointed on outer apical margin. The pygofer has a short basal spine which is not as long as plate and a black plate with several teeth which is just at apex of plate.

Holotype male and *paratype* males collected at IGUALA, GUERRERO (elevation 2400 ft., October 25, 1944, by Good and DeLong.

Retusanus luteus DeLong, new species

Resembling *punctatus* in general appearance and coloration but with distinct genitalia. Length—male 5 mm., female 5.5 mm.

Vertex broadly rounded, two-thirds as long at middle as basal width between the eyes.

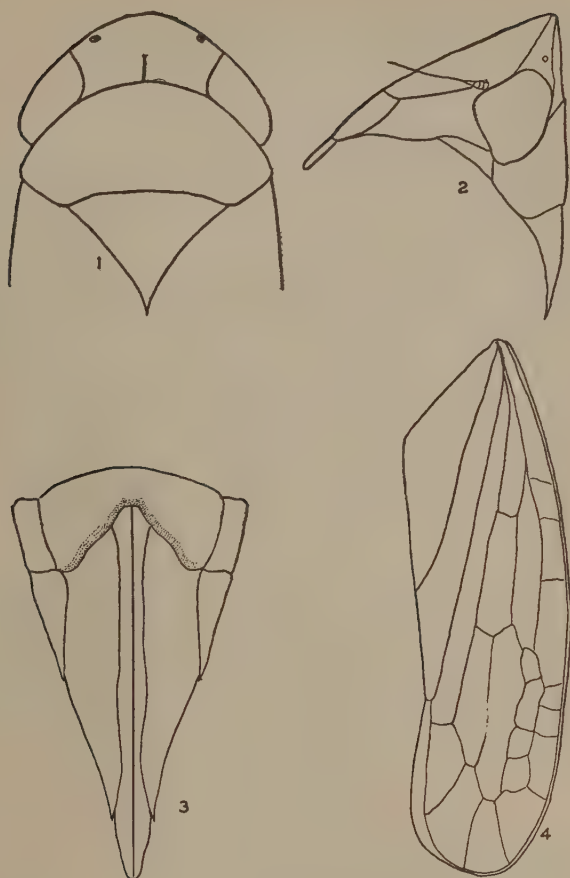


PLATE I

Retusanus luteus DeLong. Fig. 1. Dorsal view of head, pronotum and scutellum. Fig. 2. Lateral view of head, pronotum and scutellum. Fig. 3. Female genitalia, ventral view. Fig. 4. Anterior wing showing venation.

Color: Vertex pale, sparsely clothed with minute brown spots, a pair of brown spots next ocelli and a pair of rather large brown spots just above margin at apex. Face pale just below margin of vertex, most of face densely marked with minute brown spots. Pronotum and scutellum densely clothed with minute brown spots. Elytra pale subhyaline, veins dark brown, clavus and cells on corium sparsely clothed with minute brown spots.

Genitalia: Female last ventral segment deeply, broadly notched from lateral angles to near base, apex of notch narrow, entire margin embrowned. Pygofer long, narrow, ovipositor rather large, decidedly longer than pygofer.

Male plates rather long, almost as long as pygofer and broadly rounded at apex. Aedeagus resembling that of *punctatus* but broader. The V-shaped notch at apex rather broad and reaching about one-third the distance to base. The anterior process formed by the notch rounded at apex, the posterior portion bears a short tooth on inner margin of blunt apex. Styles long, concavely narrowed on outer margins at two-thirds their length to form rather broad apical portions which are slightly notched on outer margin just before apex and bear a short tooth on outer margin of blunt apex. Pygofer with a basal spine reaching only about two-thirds the length of plate. The black plates with conspicuous teeth are rather large and are on the margin of pygofer at about the apices of the plates.

Holotype male and *paratype* males collected at IGUALA, GUERRERO (elevation 2400 ft.), October 25, 1941. *Allotype* female collected at TAXCO, GUERRERO, at K. 150 (elevation 5700 ft.), October 26, 1941. *Paratype* males also taken at Iguala, Guerrero, September 9, 1939. All specimens were collected by Plummer, Good and DeLong. Male *paratype* collected at PASO DE VACA, GUERRERO, September 3, 1930, by Dr. Dampf.

Retusanus apicatus DeLong, new species

Resembling *punctatus* in general appearance and coloration but with distinct male genitalia. Length—male 4.5 mm.

Vertex broadly rounded almost two-thirds as long at middle as basal width between eyes.

Color: Vertex pale, ocelli brown and with two rather large proximal brown spots just above margin at apex. Entire vertex except anterior margin sparsely clothed with minute brown spots. Pronotum, scutellum and face densely marked with minute brown spots. Elytra white, subhyaline, veins dark brown, clavus sparsely marked with minute brown spots.

Genitalia: Male plates not quite as long as pygofer, straight on inner margins, strongly curved on outer margins to form rather blunt apices. Aedeagus with a broad V-shaped apical notch almost

halfway to base forming an anterior tapered portion with a narrow apex, and a rather narrow posterior portion with a tooth on inner margin just before narrow rounded apex and a conspicuous spine

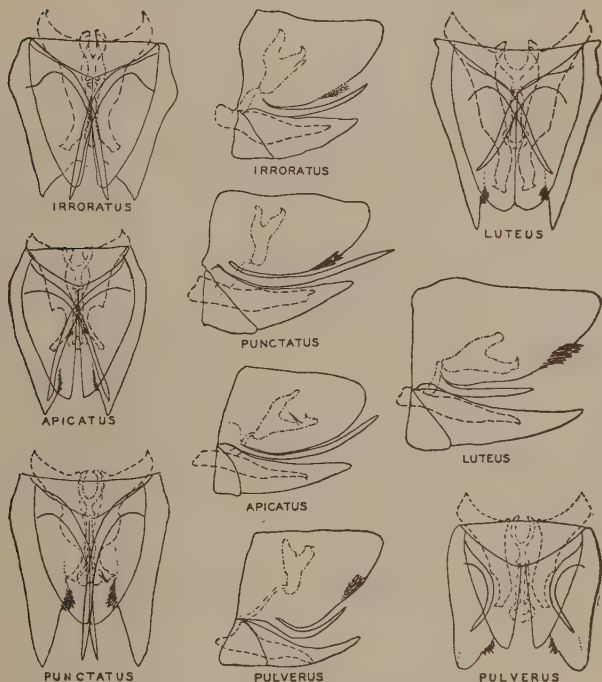


PLATE II

Retusanus spp. Ventral and lateral views of apical portions of abdomen of males showing genital structures.

just basad to tooth. The styles are abruptly narrowed at about two-thirds their length by being deeply concavely excavated on outer margins to form long slender outwardly curved apical portions. Pygofer with basal spines as long as pygofer and a small inconspicuous black plate with several small teeth just before apex of plate.

Holotype male and *paratype* males collected at IGUALA, GUERRERO (elevation 2400 ft.), October 25, 1941, and September 11, 1939, by Plummer, Good and DeLong. *Paratype* males collected at SAN GEROMIMO, GUERRERO, August 30, 1930 (M.F. 1787) and at ZINCAURO, GUERRERO, September 2, 1930 (M.F. 1789), by J. Parri.

***Retusanus irroratus* DeLong, new species**

Resembling *punctatus* in general form and appearance but with distinct male genitalia. Length—male 4.5 mm.

Vertex broadly, roundedly produced a little more than half as long at middle as basal width between the eyes.

Color similar to *punctatus*. The face, pronotum and scutellum heavily marked with minute brown spots. Vertex with a pale spot around each brown ocellus, the remainder, including the median anterior portion densely clothed with minute brown spots. Elytra white, subhyaline, the veins dark brown, the claval and discal areas marked with many minute brown spots.

Genitalia: Male plates short and broad, about twice as long as basal width, convexly rounded on outer margin to blunt, rounded apices. Aedeagus short, broad on apical half, notch at middle of apex forming a blunt anterior portion and a pointed apical portion. Style rather long, broadly and rather deeply excavated on outer margin just before apex; apical third curved outwardly, apex narrowed and truncate. Pygofer with a basal spine reaching beyond apex of plates and a rather long black plate with several teeth which arise just before apex of plate.

Holotype male and *paratype* males collected at IGUALA, GUERRERO (elevation 2400 ft.), October 25, 1941, by Good and DeLong.

A STAPHYLINID BEETLE NEW TO CALIFORNIA

Ocypus ater (Grav.), a European Staphylinid beetle, long recorded from the Atlantic States and for many years from the seaboard areas of Washington and Oregon, has recently been found on the sea beaches to the west of San Francisco. In former years both Dr. Blaisdell and I collected along this beach without ever seeing it.

This species has evidently followed the role taken by numerous European species, first establishing itself in our Northwest, then working down the coast.—EDWIN C. VAN DYKE.

A NEW COENONYCHA FROM CALIFORNIA

(Coleoptera, Scarabaeidae)

BY ROBERT W. L. POTTS

University of California, Berkeley

Heretofore the members of this genus have been primarily associated with chaparral. The discovery of this apparently new species in an area of grass pastureland adds a new habitat to those previously known. Fragmentary biological notes are therefore included as being of probable interest.

Coenonycha pascuensis Potts, new species

Medium-sized, narrow; pale testaceous with elytral suture, margin and base, pronotal margin and two lateral spots, and head slightly to considerably darker (in life with a reddish cast, lost in dried specimens); metathoracic wings fully developed in both sexes.

Male: Head largely punctate, vertex with small, irregular largely impunctate area and front with largely clear short mesal line above suture; front with punctures often contiguous or subcontiguous in irregular short rows sometimes separated by one-third to one-half the width of a puncture, punctures less dense over vertex, again crowded over eyes; clypeus densely punctate and punctures larger, contiguous or subcontiguous; lateral margin of clypeus narrowly, slightly reflexed at base to strongly so at apex and anterior margin, only slightly less elevated at middle than at angles, not smooth on reflexed surface; clypeal suture distinct throughout, strongly, evenly arched toward base at middle, in shape of a bow; antennae 10-segmented. *Pronotum* widest at strongly rounded hind angles which are at about middle, margin evenly rounded behind, slightly sinuate before to the barely produced, slightly acute anterior angles; surface smooth, shining, punctures very irregularly placed, thickest at or behind middle toward sides (about one puncture width between), sparse anteriorly and mesally (two to five puncture widths between), nearly absent at base, each with a short seta. *Elytra* with side margins subparallel; humeral umbones prominent; costae barely evident as partial, paired rows of punctures, fourth or outer pair most distinct; surface nearly smooth and shining, translucent, so veins and folding of wing beneath apparent; punctures irregular in size and placement, deep, but without distinct edges, larger ones each with a short seta. *Venter* with punctures less dense than above, small to large, metasternum longer than width of hind

coxal plates; foretarsi with first segment extending well beyond apical tibial claw; all tarsal claws cleft apically, outer tooth largest and longest. Length 8.5 mm., width 3.75 mm.

Female: Similar to male but more robust, more rounded; clypeal margin more strongly reflexed, especially at outer angles, nearly smooth on reflexed surface; head and pronotum not so densely punctate, punctures more evenly spaced, setae much shorter above; foretarsi with first segment not extending beyond apical tooth of tibia; tarsal claws cleft subapically with inner tooth very fine. Length 9 mm., width 4.25 mm.

Type material: *Holotype* male and *allotype* female taken in copulation 4-2-45, two and one-half miles west of BYRON, CONTRA COSTA COUNTY, CALIFORNIA, in the collection of the California Academy of Sciences (Nos. 5468 and 5469). Eight hundred and twenty-eight *paratypes*¹ from the same locality, one collected 3-8-45 by Ray F. Smith, eleven collected 3-19-45 by Ray F. Smith, seven hundred and ninety-six collected 4-2-45 by Ray F. Smith and the author, twenty-two collected 4-9-45 by the author, in the collections of the author, the University of California, California Academy of Sciences, and others. Those collected on the first two dates and on the last date, as well as thirty-nine of the total on 4-2-45 were taken at roots, while the remainder were taken after dark in sweeping.

The relationships of the species are apparently with *C. pallida* and *C. lurida*, both of which are southern California species found on shrubs. It is closest to *pallida* in appearance, and keys out with it in the Cazier and McClay key. It may be separated from *pallida* by a number of characters, the somewhat produced and slightly acute anterior pronotal angles and slightly sinuate margins before the hind angle, the rather inevident costae, the presence of large punctures on the venter, the different character of the clypeal margin apparently being the best. Unfortunately all known specimens of *pallida* are unavailable for comparison at present due to war conditions. It is probable that better characters for differentiation will be found to exist when these specimens are again available.

This species was discovered by Mr. Smith while searching for hibernating *Diabrotica*. The area where it is now known is in

¹ In a Revision of the genus *Coenonycha* by Cazier and McClay (Amer. Mus. Novitates 1239, July 19, 1943) paratypes from the type locality are referred to as paratopotypes, a term which appears unfortunate, although the intended significance is valid. Topoparatype, while lacking the euphony of the other, seems to this author to more clearly convey the intended meaning.

the open, grassy foothills to the east of Mount Diablo, in the range which forms the western boundary of the San Joaquin Valley. The general aspect is of pastureland. The site from which all the specimens were taken is less than an acre in extent, on a northeast exposure which varies in slope from about five to thirty per cent.

The plants are primarily annuals, and a majority are not native: *Erodium botrys*, *Avena*, *Hordeum murinum*, *Lupinus*, *Medicago hispida*, *Brodiaea capitata*, and *Echinocystis fabacea*. A few native grasses may be present in small numbers. Trees and shrubs are absent from the area, although an occasional oak tree occurs on the same hillside. The soil type, according to Carpenter and Cosby² is Contra Costa sandy loam. Scarab larvae, of two sizes, were found in soil samples but have not been identified as this species as yet, nor was their association with any one plant possible.

The adults apparently spend the day partially or completely but not deeply buried in the soil near the roots of the various plants. Observation at the site, and soil samples brought into the laboratory and sifted confirmed the fact that specimens were most common in portions of the area where the soil was somewhat moist and plants were of medium height, about 6 to 8 inches. They were less common in tall grass and manroot clumps where the soil was more moist, nor were they common in portions of the area where the soil was dryer and the plants short. In sweeping, the specimens appeared to be most common in areas of medium plants.

Less than six per cent of the specimens taken in sweeping were females, whereas approximately fifty per cent of the specimens taken at roots were females.

The species, so far as is known, is quite localized, not being found in similar areas to the north a distance of only a few miles. This absence from these areas is not positively proven as a night search was not possible, however, a thorough day search was completely unfruitful. It would nevertheless be the opinion of the author that further investigation will prove the species widespread in the sandy loam pastureland along the foothills bordering the San Joaquin Valley.

² Carpenter, E. J. and S. W. Cosby, 1939. Soil Survey of Contra Costa County, California, U.S.D.A. Soil Survey Series 1933 (26):26 and map.

IXODES TOVARI, A NEW SPECIES FROM MEXICO¹
(Ixodidae)

BY R. A. COOLEY

Senior Entomologist, U. S. Public Health Service

Ticks received for identification on March 14, 1945, from Dr. Raúl M. Tovar, Departamento de Investigaciones Médicas, Hospital General, México D. F., México, included seven lots of an *Ixodes* which is new to science and is here described and figured.

Accession records, all from "hares," are as follows:

- 21618, BRAVO, NUEVO LEON, MEXICO, 19 adults, 4 nymphs, 2 larvae;
21620, TORRECILLA, GUANAJUATO, MEXICO, 1 male, 1 female;
21621, COMONTOSO, GUANAJUATO, MEXICO, 1 male, 1 female;
21623, BRAVO, NUEVO LEON, MEXICO, 6 males, 1 nymph;
21624, BRAVO, NUEVO LEÓN, MEXICO, 1 male;
21625, BRAVO, NUEVO LEON, MEXICO, 2 males, 1 nymph;
21628, BRAVO, NUEVO LEON, MEXICO, 1 nymph.

Ixodes tovari Cooley, new species

FEMALE

Figures 1 and 2

Body. Length (unfed), tip of hypostome to posterior margin, 2.27; width, 1.15.² Oval, widest back of the middle, scutum occupying two-thirds the length of the body not including the capitulum. No fully engorged specimens available, but one specimen well advanced in feeding measures 6.5 in length and is slightly wider behind.

Capitulum. Length, tip of hypostome to tips of cornua, 0.72; width of base, 0.375. Dorsal surface of basis with sides converging posteriorly. Profile lines of anterior side of basis showing a shoulder each side of the insertion of the chelicerae. Posterior margin concave, salient. Cornua about as long as wide, terminally rounded. Porose areas small, often difficult to see; either oval or reniform, placed far apart near the posterior side near the cornua. Palpi long, article 2 a little longer than 3. Outer profile line straight or mildly convex; inner profile line convex. Stalks of the chelicerae very long.

¹ From the Rocky Mountain Laboratory (Hamilton, Mont.), National Institute of Health.

² All measurements in this paper are in millimeters.

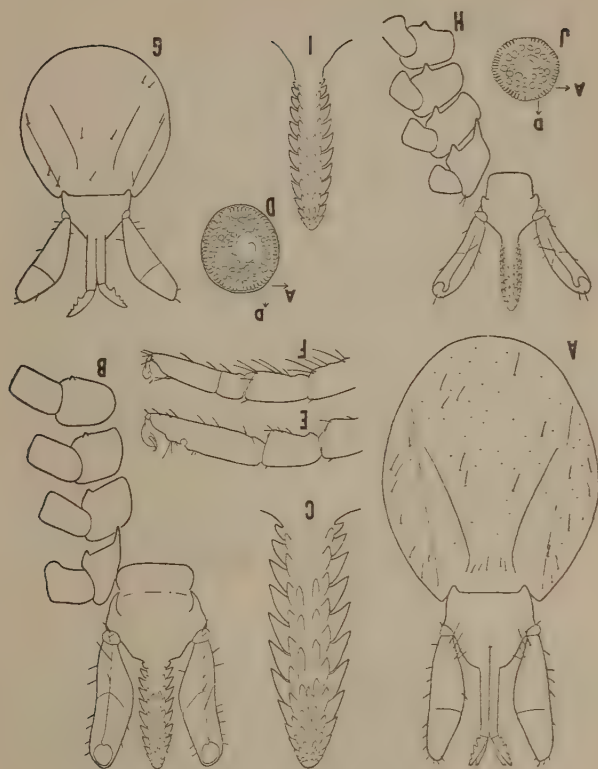


FIGURE 1

Ixodes tovari, n. sp. A. Female capitulum and scutum, dorsum. B. Female capitulum and coxae, venter. C. Female hypostome. D. Spiracular plate. E. Female metatarsus and tarsus, leg I. F. Female metatarsus and tarsus, leg IV. G. Nymph capitulum and scutum, dorsum. H. Nymph capitulum and coxae, venter. I. Nymph hypostome. J. Nymph spiracular plate.

In ventral view, basis is mildly constricted back of the auriculae; posterior margin very broadly rounded, salient. Transverse sutural line visible. Auriculae as long, thin horns directed downward and backward. Palpi with a few long and a few short hairs.

Hypostome. Long, narrow, bluntly pointed. Denticles $4/4$ on the distal end, then $3/3$ for about three-fourths the length, then $2/2$ to the base. Lateral denticles much larger than the medians. Length, 0.45.

Scutum. Length from 0.99 to 1.11; width, 0.78 to 0.84. Oval, wider anterior to the middle. Lateral carinae present as moderate, nearly parallel elevations extending from the scapulae to near the postero-lateral margins, with top rounded. Cervical grooves as faint lineal depressions, first convergent, then divergent. Surface smooth, shining. Hairs few, of moderate length and each in a pit which is larger than the fine punctations.

Legs. Moderate in length and size. Tarsi long, tapering. Length of tarsus I, 0.54; metatarsus, 0.27. Length of tarsus IV, 0.42; metatarsus, 0.30.

Coxae. All coxae mildly convex. Internal spur long on coxa I, absent on II, III, and IV. External spurs short on all coxae and progressively smaller from I to IV.

Spiracular plate. Broad oval with the longer axis transverse. Length, 0.27; width, 0.24.

Genital aperture. Opposite the intervals between coxae III and IV.

MALE

Body. Oval, a little wider behind. Total length, tip of palps to posterior margin, 1.59 to 1.86; width, 0.84 to 1.02.

Capitulum. Length, tips of palpi to tips of cornua, 0.45; greatest width of basis, 0.27. Dorsum of basis broad, mildly convex, with lateral margins converging posteriorly; surface punctate. Cornua distinct, pointed, about as wide as long. Palpi long, wide; combined length of 2 and 3, 0.30; width of palpus, 0.12.

In ventral view, basis rounded and salient behind and with the short, rounded auriculae in the same plate as the posterior salience. Palpal article I with a ventral edge continuing the ventral edge on 2 and 3. Ventral edge of 2 with several long hairs. Other short hairs numerous on the palpi.

Hypostome. Long, bluntly pointed apically. A few long lateral denticles near the middle. Ventral surface longitudinally grooved with about 17 diagonal crenulations on each half. Length, 0.30.

Scutum. Evenly convex excepting the antero-lateral areas which are mildly concave. Lateral carinae absent. Cervical grooves faint or absent. Pseudoscutal areas faintly differentiated by color or by having fewer punctations. Numerous long hairs present, each in a pit. Punctations moderate in size, deep.

Ventral plates. Median plate more than twice as long as the anal plate. Adanals wider in front. Long, fine hairs and large punctations numerous on the median plate. Long, fine hairs also on anal and adanals but true punctations are absent.

Legs. Essentially as in the female. Length of tarsus I, 0.42; metatarsus, 0.21. Length of tarsus IV, 0.36; metatarsus, 0.225.

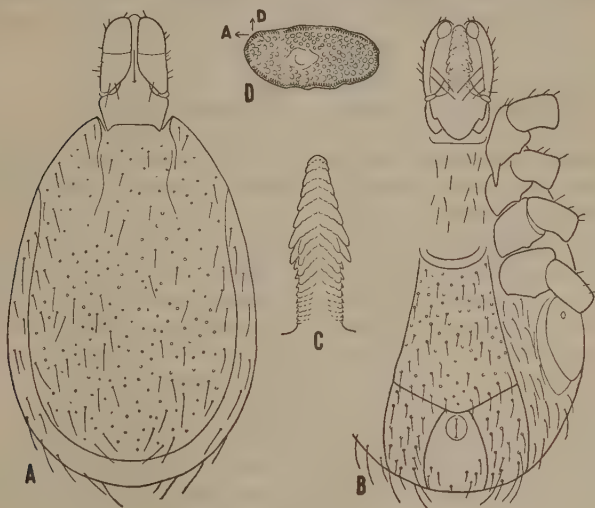


FIGURE 2

Ixodes tovari, n. sp. Male. A. Capitulum and scutum, dorsum. B. Capitulum, coxae and ventral plates, venter. C. Hypostome. D. Spiracular plate.

Coxae. Essentially as in the female but internal spur on I longer.

Spiracular plate. Oval, large and with the longer axis longitudinal. Length, 0.36; width, 0.105.

Genital aperture. With its large flap between coxae III.

NYMPH

Capitulum. Length, tip of hypostome to tips of cornua, 0.33; greatest width of basis, 0.21. Posterior margin of basis nearly straight, salient. Lateral margins divergent posteriorly. Punctations and hairs absent. Cornua distinct, divergent, a little longer than the width at the base. In ventral view, basis narrower back

of the auriculae. Transverse sutural line visible. Auriculae as short, rounded retrograde spurs.

Hypostome. Long and narrow, Dentition 3/3 for the apical half, then 2/2 to the base. Lateral denticles much larger than the medians. Length, 0.23.

Scutum. Oval, short, widest at about the middle, broadly rounded behind. Lateral carinae faintly indicated near the antero-lateral margins. Cervical grooves as shallow, lineal, divergent depressions. Surface smooth, impunctate; hairs short, few, scattered.

Coxae. Essentially as in the adults.

Spiracular plate. Large, circular, diameter about 0.10.

Holotype, female from 21621. *Allotype*, male from 21621. *Paratypes*, females, males, and nymphs from 21618, 21623, 21624, and 21625.

The type materials have been deposited as follows: holotype, allotype, 21621, and some paratypes, in the Rocky Mountain Laboratory; paratypes, 2 females, 1 male, 1 nymph, 21618, U. S. National Museum, Washington, D. C.; paratypes, 1 female 21618, 1 male 21623, 1 nymph 21623, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts; paratypes, 1 female 21618, 1 male 21625, Department of Entomology, University of California, Berkeley, California; paratypes, 1 female 21618, 1 male 21624, Dr. Raúl M. Tovar, México D. F., México.

In a general way, this species resembles *scapularis*, *affinis*, and *ozarkus*, but the female of *tovari* is easily distinguished by its long, horn-shaped auriculae. The male of *tovari* has the hypostome of unique appearance which separates it from all known American species of this genus.

This tick is named in honor of the collector.

JAN OBENBERGER

Through the courtesy of a soldier of the Fifth Army Corps, recently returned from Prague, I have been notified that my friend, Dr. Jan Obenberger, the Director of the Czecho-Slovakian National Museum and a world specialist in the family Buprestidae of the Order Coleoptera, is alive and well.—EDWIN C. VAN DYKE.

AN INTERESTING NEW BRACHYPTEROUS SPECIES
OF PHOTOPSIS

(Hymenoptera, Mutillidae)

BY R. M. SCHUSTER

Cornell University, Ithaca, N. Y.

Brachypterous Mutillidae are not often encountered; in North America *Myrmilloides grandiceps* (Blake) is constantly brachypterous, *Dasymutilla waco* (Blake) occasionally brachypterous, rarely apterous, *Dasymutilla hector* (Blake) very rarely brachypterous, and *Morsyma ashmeadii* Fox, as far as is known, is apterous. These are the only previous records of brachypterous and apterous male Mutillidae from North America; therefore, the discovery of a new short-winged form is of some interest. As far as can be judged, the specimen is a fully developed, not teneral, and the wings are fully developed and hardened.

Photopsis brachyptera Schuster, new species

Male. Length 4.7 mm. Rufo-ferruginous, the legs and antennae considerably lighter, more yellowish; very weakly setigerously punctured, except for the alitrunk, which is largely areolate-reticulate, the pubescence sparse, silvery, erect, pilose; wings greatly abbreviated, not reaching beyond petiole.

Head, including eyes, 1.05 mm. wide (1.1 as wide as thorax in front of tegulae), rather moderately extended behind the eyes, the length behind the eyes 0.20 mm. (three-fourths the length of the eyes). Ocelli rather small, the posterior behind the supraorbital line; length of the posterior 0.12 mm.; their distance apart, 0.22 mm. (1.83 their maximum diameter); their distance from the front ocellus 0.13 mm. (slightly greater than the length of the posterior ocelli); their distance from the nearest eye-margins, 0.30 mm. (2.5 their length); the ocellar area more deeply pigmented than the rest of the head. Eyes somewhat silvery, distinctly faceted, 0.40 mm. long, 0.36 mm. wide. Pubescence very moderate, of long, nearly silvery pilose hairs arising from scattered, very small punctures (somewhat closer on the occiput); except for these punctures the head is smooth, polished, shining. Posterior and posterolateral angles evenly rounded into the occipital region. Antennal tubercles separated from each other by the length of the posterior ocelli, evenly concave between and below them, not carinate; clypeal region only moderately developed, the distance from the anterior margin to a line drawn through the dorsal margins of the antennal tubercles one-half of the length

between the eyes on the frons; the anterior clypeal margin not reflexed, not produced, medially rather strongly, evenly convex, with scattered, long-setigerous, rather strong punctures. Mandibles moderate in size, evenly curved, not elbowed, apically bluntly bidentate, a smaller tooth within; ventrally very strongly incised and dentate about half way from apex to base of mandible, basal half of mandible with rather long, coarse hairs. Scape about 0.42 mm. long (as long as the first two flagellar segments), strongly curved, moderately setigerously punctured dorsally, the hairs rather coarse, moderately long, chiefly erect; pedicel over 1.5 times as long as wide, two-thirds the length of the first flagellar segment; flagellum slender, the first article twice as long as wide, the second and third subequal in length and scarcely a fourth longer than the first; entire flagellum silvery puberulent, the pedicel with longer silvery hairs.

Alitrunk 0.97 mm. wide at tegulae (less than width of head); humeral angles absent, but the prothorax rather square in front; pronotum characteristically, coarsely but shallowly hexagonally areolate-reticulate, the ridges between the areolations thin and sharply defined; pubescence of pronotum denser than that of head, erect, pilose, argenteous. Mesonotum similarly, but very shallowly, obsoletely areolate, the lateral areas of it nearly smooth, except for sparse, long-setigerous punctures, the hairs slightly ferruginous-tinged; parapsidal furrows obsolete, scarcely distinct. Scutellum similarly, but quite deeply sculptured, not at all strongly inflated, nearly on the same plane as the mesonotum and propodeum. Mesopleura and mesosternum also areolate-reticulate, the mesosternum entirely lacking any carinae or dentate processes. Propodeum dorsally similarly reticulate, but the reticulations much larger; the lateral faces and the upper part of the posterior face similarly sculptured, but the posterior face is smooth medially and apically, except for sparse punctures that bear prominent, upward-pointing, silvery plumose hairs; the lateral and posterior faces of the propodeum are separated from each other at a sharp angle.

Forewings short, scarcely reaching beyond propodeum, with the venation strongly reduced; C, R-M, CU+Cu, and 1st A are present and infuscated on the basal two-thirds of the wing; the stigma is also distinct and infuscated; cell M is enclosed, and slightly longer than cell Cu+Cu, which is also distinct; cell M₂ is enclosed, except near apex; cell M₃ is entirely open on the outer side; all other cells apicad of these are entirely absent. The hind wings are even more reduced, and the infuscated stubbs of the veins are limited to the basal third of the wing.

Legs lighter than the rest of the thorax, the coxae, trochanters, femora and tibia with sparse, long, erect pilose pubescence; the tarsi with dense, more or less appressed, fine silvery hairs; the serrate calcars of the hind tibiae are of the same color as the legs, the longer is three-fourths as long as the metatarsus.

Abdomen sparsely punctate and pubescent; the petiole, measured dorsally, wider at apex than its maximum dorsal length, its

basal width scarcely over a third that of the apex, gradually dilated toward the apex, which is evenly rounded into the second tergite, from which it is scarcely separated, even laterally; viewed laterally, it is very weakly convex above, not at all nodose, the anterior two-thirds are nearly plane, while the apical part is rounded into the second tergite; ventrally it is strongly separated from the second tergite; the flat dorsal plane moderately coarsely, sparsely punctate, bearing long erect, silvery hairs, Second tergite smooth, polished, shining, except for very few, scattered setigerous punctures bearing long silvery pilose hairs; the apical margin, in addition, with a few inconspicuous long-plumose hairs; pigmentation of second tergite rather deeper than that of rest of body, except ocellar region. Apical tergites similarly pubescent, also with some scattered, sparse, small plumose hairs, nearly impunctate; the pygidium not margined laterally or apically. Felt lines of second tergite less than a third the length of the tergite, situated medially between the base and apex of the tergite; those of the second sternite similar, but much shorter, situated behind the median line of the sternite. Second sternite sparsely punctate, bearing long, simple, or shortly plumose hairs, and a band of somewhat shorter, longer-plumose hairs at apex; apical sternites similarly, but much more sparsely pubescent, except the third sternite, which also has a rather conspicuous band of plumose hairs at its apex.

Holotype: BERKELEY, CALIFORNIA, October 4, 1919, in the collection of Cornell University (Type No. 2196).

This species is the first known brachypterous Photopsidine wasp. At first it was felt that the specimen might conceivably be an immature specimen, in which the wings were not yet mature, but there seems to be no evidence to support such a thesis. It seems to be somewhat allied to *Photopsis hyalina* (Blake) and *Photopsis mesillensis* Ckll. The absence of processes of any kind on the mesosterna throws this species into the group *Photopsis*, as distinguished from the group *Odontophotopsis*, which was unfortunately founded on a generic basis. It differs from all known species of *Photopsis* by the following combination of characters: brachypterous wings, hexagonally-areolate thorax, gradually dilated petiole sessile dorsally with the second tergite and not at all nodose, and the mesally convex, poorly developed clypeal area. The rather quadrate head, with small ocelli and rather small eyes, with the head scarcely less long behind the eyes than the length of the eyes, and the strongly ventrally incised and dentate mandibles distinguish this species from *P. hyalina* and *mesillensis*; *hyalina* furthermore differs in that the parapsidal furrows are more distinct.

A NEW LARICOBIOUS FROM OREGON
(Coleoptera, Derodontidae)

BY KENNETH M. FENDER
McMinnville, Oregon

Laricobius nigrinus Fender, new species

Males Black and shining above, antennae brunneous, legs and ventral surface piceous, pubescence piceous to ashy. Head wider than long, rather finely closely punctured. Behind the antennae and between the eyes is a rough oval of very coarse punctures. Pronotum wider than long, widest at the middle, base slightly wider at the angles than the apex, sides strongly sinuate, basal and apical angles nearly equally prominent; closely punctate and with larger coarse punctures scattered throughout. Elytra wider than thorax at the humeri, sides faintly, arcuately divergent to the apical third, then rapidly rounded to the suture; elytral striae composed of large subquadrate punctures, interstriae finely, sparsely punctate. Dorsal pubescence composed of fine erect hairs. Legs and under-surface finely punctured and with a fine ashy pubescence which is recumbent and sparse. Lateral lobes of the aedeagus obliquely truncate as in *L. rubidus* Lec.¹ Length 2 to 2.3 mm.

Female. Piceous and with ashy pubescence, otherwise similar to the male. Length 2.5 mm.

Holotype male, *allotype* female, and five *paratypes*, June 20, 1904, BEAR SPRINGS, Wapinitia cut-off, OREGON. One *paratype*, October 29, 1933, CRESTON, BRITISH COLUMBIA, collected by G. Stace Smith.

Laricobius nigrinus can be separated from the other two North American species by its color and the shape of the pronotum. The color is black to piceous in *nigrinus*, uniformly testaceous to dark reddish brown in *L. laticollis* Fall and black with a wide red median vitta on each elytron in *L. rubidus* Lec. In *nigrinus* the pronotum is widest at the middle and the basal margin is wider at the angles than is the apical margin. In both *rubidus* and *laticollis* the pronotum is widest in front of the middle and the basal margin is narrower at the hind angles than is the apical margin.

The author is indebted to Mr. C. A. Frost for calling his attention to this new species.

¹ Brown, W. J., 1944. Canad. Ent., 76:8.

A NEW TRIBE AND GENUS OF NEMATINE SAWFLY (Hymenoptera, Tenthredinidae)

BY HERBERT H. ROSS

Illinois Natural History Survey, Urbana, Illinois

The following new genus, *Pristola*, combines many characteristics which are unlike any known genera of Nematinae. The venation of both wings is characterized by the atrophy of vein 2A & 3A, which would place the genus in the tribe Pseudodineurini. From this tribe the genus *Pristola* differs in the striking characters of the mesonotum, fig. 3. Most conspicuous of these are the semi-obliterated praescutal structures and the long, exposed postnotum of the mesothorax; the male and female genitalia are also of very unusual shape. In the Pseudodineurini the praescutum is well defined, and the exposed portion of the postnotum is short and almost hidden under the large and projecting post-tergite. On the basis of these and other differences a new tribe is proposed for the reception of *Pristola*.

Pristolini new tribe

Characteristics. Venation typical of the specialized Nematinae, the front wings with both 2r and the basal lobe of 2A & 3A absent; general proportion of wings resembling in other respects those of *Nematus*. Mesopleurae with a well-defined, linear prepectal suture. Mesonotum, fig. 3, with praescutal sutures only faintly indicated, becoming obsolete some distance from meson; mesoscutellum with only a narrow post-tergite which is on a level with the postnotum. Visible portion of postnotum long and flat, so that the post-tergite and metascutellum are far apart; metascutellum arcuate. First abdominal tergite with its acrotergite also flat and long.

Erected for the single genus *Pristola*.

Pristola new genus

Characteristics. Body elongate and slender. Head wide, fig. 2, somewhat short and stocky from lateral view; clypeus very shallow and extending scarcely beyond the base of the mandibles. Labrum semi-circular and of only moderate size. Antennae 9-segmented, long and filiform, the last four segments gradually diminishing in length, the apical segment four times as long as wide and pointed at tip. Mandibles with lateral aspect narrow and blade-like; with anterior aspect as in fig. 2, each mandible possessing a long curved apical tooth and a small sharp subapical tooth. Legs slender,

tarsal claw also slender and long, without any trace of a subapical tooth.

Genotype. *Pristola macnabi* new species.

In the key to the genera of the Nematinae (Ross 1937: p. 75), *Pristola* will run to couplet 9 on the basis of the atrophy of 2A & 3A in both front and hind wings. Couplet 9 can be emended as follows to accommodate *Pristola*:

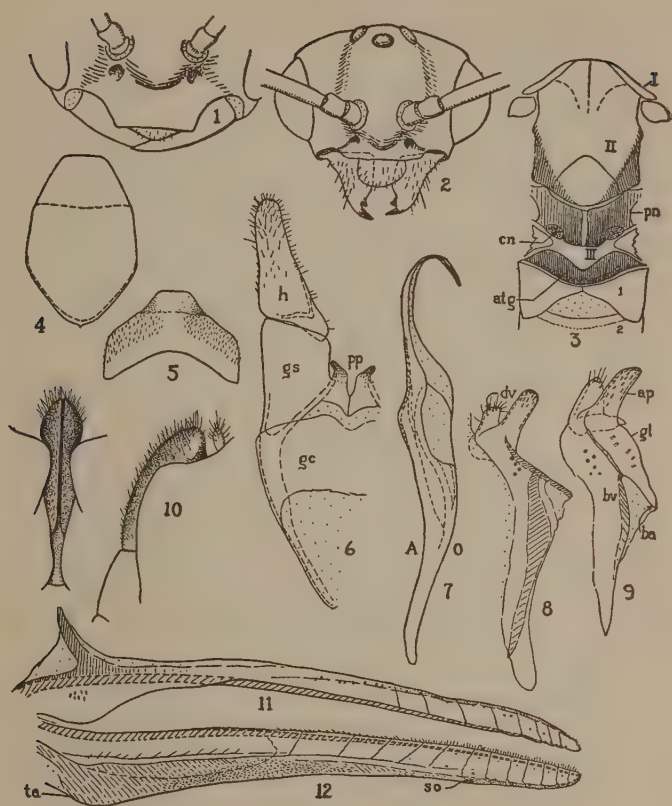
9. Clypeus shallow, not extending over base of mandibles, fig. 2; post-tergite very narrow, postnotum flat and exposed, fig. 3; mandibles with only a minute inner tooth.....
*Pristola* Ross
- . Clypeus extending as a broad shelf over the basal half of the mandibles, fig. 1; post-tergite large and triangular, with exposed part of the postnotum short and declivous (similar to Ross 1937, fig. 124); mandibles tridentate (Ross 1937, fig. 318), the subapical teeth large and prominent.....9a
- 9a. Ocelli forming a wide triangle (Ross 1937, fig. 294).....
*Pseudodineura* Konow
- . Ocelli forming a flatter triangle (Ross 1937, fig. 295).....
*Kerita* Ross

Pristola macnabi new species

Male. Length 6 mm. Body straw color, with the antennae, ocellar region, middle portion of the mesonotum, most of the abdominal dorsum, sutures of mesopleurae and varying lines on dorsal border of legs, dark brown to black. Wings hyaline, venation dark brown. Body and appendages moderately hairy. Head shining, ocellar area prominently raised, with rounded margins; antennae very long and filiform; mesonotum and mesopleurae highly polished with only extremely fine punctation. Wings very

LIST OF ABBREVIATIONS FOR FIGURES

ap—apiceps	gl—gonolacinia
atg—acrotergite	gs—gonostipes
ba—basiura	h—harpes
bv—basivolsella	pn—postnotum
cn—cenchri	pp—praeputium
dv—distivolsella	so—sclerora
gc—gonocardo	ta—tangium



EXPLANATION OF FIGURES

Fig. 1. *Kerita fidala* Ross: Clypeal region of head. Figs. 2-12. *Pristola macnabi* Ross: fig. 2, front of head; fig. 3, dorsum of thorax; fig. 4, apical sternite; fig. 5, eighth sternite; fig. 6, male genitalia, abossicular aspect; fig. 7, penis valve; fig. 8, volsella, dorsal aspect; fig. 9, volsella, meso-dorsal aspect; fig. 10, sheath, ventral and lateral aspect; fig. 11, lance; fig. 12, lancet.

long. Apical eighth tergite produced into a slightly convex, truncate process, fig. 5. Apical sternite elongate, tapering at apex, the tip fairly narrow and truncate, fig. 4.

Male genitalia, fig. 6, with large, submembranous gonocardo, moderately wide gonostipes and long harpes. Parapenes declivous, moderately long, and angled laterad near apex. Volsella, fig. 8, with distivolsella short and ovate, gonolacina with booby plate-like and held at right angles to basivolsella, fig. 9, so that from the dorsal aspect, fig. 8, it appears as a thickening along the top of the volsellae. Apicops thin and plate-like, but fairly long, moderately wide, and round at apex, at its base partially fused with the distivolsella. Penis valves elongate, with a sclerotized band along the abossicular side of the valvaceps, whose tip is attenuated into a long, slender, whiplike process.

Female. Length 7 mm. Color almost entirely reddish brown with dark areas similar to those of male but much less extensive. General structure similar to male. Shosht, fig. 10, with lateral aspect blunt and rounded at apex, dorsal aspect gradually narrowing to a semipointed apex; cerci short. Saw extremely long and slender. Lance, fig. 11, with a long, slender radix twice as long as lamnium; lamnium divided into about eight segments, the apical one minutely serrate on its dorsal margin. Lancet, fig. 12, with ventral margin neither lobed nor toothed, but forming a sclerite which occupies half the width of the radix and gradually tapers to a narrow marginal ribbon toward the apex of the lamnium; lamnium divided into twelve irregular segments; the first six sutures do not reach the ventral margin but the apical six reach the margin and have a very small spiculiella near the sclerite.

Holotype, male. BOYER, OREGON, April 25, 1936 (INHS).

Allotype, female. Same data but April 11. (INHS).

Paratype. OREGON: Same data, April 11, 4♂, 2♀; April 18, 1♀; April 25, 1♂; May 2, 1937, 1♂; May 5, 1935, 2♂, 1♀; May 15, 1937, 1♂; May 22, 1937, 1♂. NEW HAMPSHIRE: Mt. Washington, 6000 ft., August 6, 1939, B. Arenburg, 1♂. (Mass. Agr. Coll.).

It is unusual that this species should be found in two places so far apart. This situation is reminiscent of certain species of *Pristiphora*, many of which have few known records but these are scattered from coast to coast.

CATALOGUE OF APIOCERIDAE OF THE WORLD

BY WILLIAM F. RAPP, JR.

AND

WILLIS E. SNOW

The family Apioceridae is composed of large flies which are restricted to arid or semi-arid regions. Very little work has been done in this family until recently when Cazier¹ revised the North American species and Hardy² revised the Australian species. Since the publication of the Kertész catalogue in 1906 so many new species have been described that it has been thought advisable to bring it up to date.

The following is a comparison of the Kertész catalogue and the present paper.

	Kertész 1906	Rapp & Snow 1945
Apiocera.....	9	35
Apomidas.....	1	—
Megascelus.....	—	1
Neorhaphiomidas.....	—	2
Rhaphiomidas.....	4	12
	—	—
	14	50

Genus APIOCERA Westwood

<i>aldrichi</i> Painter, Bul. Univ. Kans., vol. 37 (1936), pp. 193-194.	Arizona California
<i>alleni</i> Cazier, Amer. Midland Naturalist, vol. 25 (1941), p. 606.	California
<i>augur</i> Osten Sacken, Biol. Cen. Amer. Dipera, vol. 1, p. 212 (1887); Painter, Ann. Ent. Soc. Amer., vol. 25 (1932), pp. 354-355; Painter, Bul. Univ. Kans., vol. 37 (1936), p. 192.	Mexico New Mexico Texas
<i>beameri</i> Painter, Bul. Univ. Kans., vol. 37 (1936), pp. 198-199.	California
<i>bilineata</i> Painter, Ann. Ent. Soc. Amer., vol. 25 (1932), p. 351.	New Mexico
<i>braunsi</i> Melander, Milwaukee Bul. Wis. Soc., vol. 5 (1907), p. 125.	Cape Colony, South Africa

¹ Cazier, M. 1941. Revision of North American Apioceridae. Amer. Midl. Nat., 25:589-631.

² Hardy, G. H. 1940. Miscellaneous Notes on Australian Diptera, VII Proc. Linn. Soc. N. S. W., 65:484-493.

- caloris* Painter, Bul. Univ. Kans., Vol. 37 (1936), Arizona
pp. 194-195.
- clavator* Painter, Bul. Univ. Kans., vol. 37 (1936), Mexico
pp. 196-197.
- convergens* Painter, Bul. Univ. Kans., vol. 37 California
(1936), p. 196.
- deforma* Norris, J. Roy, Soc. W. Aust., vol. 22 Western
(1936), p. 52. Australia
- exta* Cazier, Amer. Midland Naturalist, vol. 25 California
(1941), p. 609.
- fuscicollis* Westwood, London and Edinb. phil. Australia
Mag. and Journ. of Sci., vol. 6 (1835), p. 449; Queensland
brevicornis Wied., Aussereurop. zweifl. Ins., New So. Wales
vol. 2 (1830), p. 646; *asilica* Westwood, London Victoria
and Edinb. phil Mag. and Jour. of Sci., Tasmania
vol. 6 (1835), p. 449; *bigotii* Macq., Dipt.
exot., suppl. 2, p. 49 (1847).
- haruspex* Osten Sacken, Bul. U. S. Geol. Surv., Arizona
vol. 3 (1877), p. 287; Painter, Ann. Ent. Soc. Brit. Columbia
Amer., vol. 25 (1932), pp. 352-353; Painter, California
Bul. Univ. Kans., vol. 37 (1936), pp. 191-192. Idaho
Oregon
Wyoming
- hispida*, Cazier, Amer. Midland Naturalist, vol. California
25 (1941), p. 605.
- immedia* Hardy, Proc. Linn. Soc. N. S. W., vol. Australia
65 (1940), p. 488. New So. Wales
- imminuta* Hardy, Proc. Linn. Soc. N. S. W., vol. Australia
65 (1940), p. 489. New So. Wales
Queensland
- infinita* Cazier, Amer. Mid. Naturalist, vol. 25 California
(1941), p. 613.
- interrupta* Painter, Bul. Univ. Kans., vol. 37 California
(1936), pp. 192-193.
- intonsa* Cazier, Amer. Midland Naturalist, vol. Arizona
25 (1941), p. 610. California
- maerens* Westwood, Areana Entomol., vol. 1 (48) Australia
(1841), p. 551.
- maritima* Hardy, Proc. Linn. Soc. N. S. W., vol. Australia
58 (1933), p. 416. Queensland
New So. Wales

- martinorum* Painter, Bul. Univ. Kans., vol. 37 (1936), pp. 197-198. Idaho
Oregon
- melanura* Cazier, Amer. Midland Naturalist, vol. 25 (1941), p. 611. Arizona
- minor* Norris, J. Roy, Soc. W. Aust., vol. 22 (1936), p. 52. West Australia
- newmani* Norris, J. Roy, Soc. W. Aust., vol. 22 (1936), p. 53. West Australia
- norrissi* Hardy, Proc. Linn. Soc. N. S. W., vol. 65 (1940), p. 489. Australia
Queensland
- notata* Painter, Bul. Univ. Kans., Vol. 37 (1936), pp. 199-200. California
- obscura* Phil., Verh. zool. bot. Ges. Wien., vol. 15 (1865), p. 703. Chile
- parkeri* Cazier, Amer. Midland Naturalist, vol. 26 (1941), p. 607. Arizona
California
- pallida*, Norris, J. Roy, Soc. W. Aust., vol. 22 (1936), p. 50. West Australia
- pearcei*, Cazier, Amer. Midland Naturalist, vol. 25 (1941), p. 603. California
- philippii* Brethes, Rev. Chil. Hist. Nat., vol. 28 (1924), p. 104; *brevicornis* Phil., Verh. zool. bot. Ges. Wien., vol. 15 (1865), p. 702. Chile
- pica* Norris, J. Roy, Soc. W. Aust., vol. 22 (1930), p. 54. West Australia
- tonnoiri* Norris, J. Roy, Soc. W. Aust., vol. 22 (1936), p. 52. West Australia
- trimaculata* Painter, Bul. Univ. Kans., vol. 37 (1936), pp. 195-196. California

Genus MEGASCELUS Philippi

- nigricornis* (Phil.), Verh. zool. bot. Ges. Wien., vol. 15 (1865), p. 683. Chile

Genus NEORHAPHIOMIDAS Norris

- hardyi* Norris, J. Roy, Soc. W. Aust., vol. 22 (1936), p. 64. West Australia
- pinguis* Norris, J. Roy, Soc. W. Aust., vol. 22 (1936), p. 64. West Australia

Genus RHAPHIOMIDAS Osten Sacken

- abdominalis* Cazier, Amer. Midland Naturalist, California
vol. 25 (1941), p. 624.
- acton* Coquillett, West Amer. Scientist, vol. 7 California
(1891), p. 84; Townsend, Proc. Cal. Acad.
Sci., vol. 4 (1895), p. 602; Painter, Bul. Univ.
Kans., vol. 37 (1936), p. 188.
- aitkeni* Cazier, Amer. Midland Naturalist, vol. California
25 (1941), p. 623.
- episcopus* Osten Sacken, U. S. Geol. and Geog. Lower
Survey of the Terr., vol. 3 (1887), p. 281; California
Coquillett, West. Amer. Sci., vol. 7 (1891),
p. 85; Townsend, Proc. Cal. Acad. Sci., vol.
4 (1895), p. 603; Painter, Bul. Univ. Kans.,
vol. 37 (1936), p. 188.
- maculatus* Cazier, Amer. Midland Naturalist, vol. California
25 (1941), p. 628.
- maehleri* Cazier, Amer. Midland Naturalist, vol. California
25 (1941), p. 627.
- mellifex* Townsend, Proc. Cal. Acad. Sci., vol. 4 California
(1895), p. 604. Lower
California
- painteri* Cazier, Amer. Midland Naturalist, vol. New Mexico
25 (1941), p. 622; *xanthos* Townsend, Trans.
Amer. Ent. Soc., vol. 27 (1901), p. 163;
xanthos Painter, Bul. Univ. Kans., vol. 37
(1935), p. 189.
- parkeri* Cazier, Amer. Midland Naturalist, vol. California
25 (1941), p. 625.
- terminatus* Cazier, Amer. Midland Naturalist, California
vol. 25 (1941), p. 622; Coquillett, West. Amer.
Sci., vol. 7 (1891), p. 85 (*episcopus* O. S.);
Townsend, Proc. Calif. Acad. Sci., vol. 4
(1895), pp. 603-604 (*mellifex* Towns.)
- trochilus* (Coquillett), Can. Ent., vol. 24 (1892), California
p. 315 (*Apomydas*); Norris, J. Roy. Soc. W.
Aust., vol. 22 (1936), p. 50; Painter, Bul.
Univ. Kans., vol. 37 (1936), p. 188.
- xanthos* Townsend, Proc. Cal. Acad. Sci., vol. 4 Mexico
(1895), p. 605; *mellifex*, Townsend, Proc.
Cal. Acad. Sci., vol. 4 (1895), p. 604; Painter,
Bul. Univ. Kans., vol. 39 (1936), p. 189.

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